EXHIBIT 13
DATE 1/24/07
HB 7

Assessment and distribution of pharmaceuticals and hormone products in wastewater and water resources of the Gallatin Valley, Gallatin County, Montana

SPONSOR: **Gallatin Local Water Quality District**
TECHNICAL SUPPORT: **Montana Bureau of Mines and Geology**

Definition: Pharmaceuticals, personal care products, and endocrine-disrupting chemicals (PPCPs)

GOALS:

1. Document and quantify the ability of different wastewater treatment systems used in the Gallatin Valley to remove PPCPs, and quantify the loading of PPCPs to State waters from treated effluent.
2. Determine the extent and magnitude of PPCP contamination in State waters in the Gallatin Valley.
3. Evaluate potential risks to public health and aquatic ecosystems from PPCP contamination and recommend options for reducing PPCP contamination of State waters.

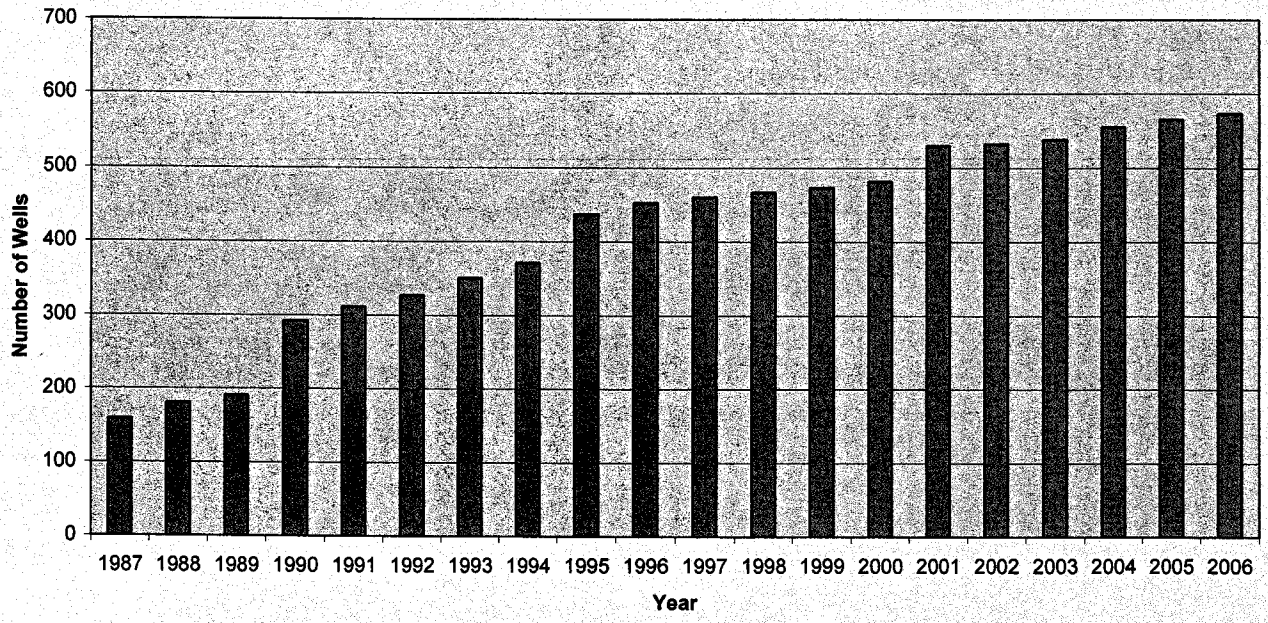
REASONS FOR CONCERN
A recent study showed that PPCPs were present in **80%** of drinking water wells sampled in the Helena Valley, Montana.
A study of sewage treatment facilities in the Missoula Valley, MT showed that the municipal treatment facility more efficiently removed PPCPs from the waste stream than did septic systems.
PPCPs were found in **all four** of the Montana streams sampled as part of a **national survey** to determine the presence of PPCPs in streams throughout the United States.
Commonly prescribed antibiotics such as the sulfonamides are persistent and not effectively removed in septic systems. Introducing low concentrations of persistent antibiotics can induce resistance in natural microbe populations. Sulfamethoxazole was present in **78%** of the wells in the Helena Valley.
In a recent study, **80%** of the male bass in the Potomac River Watershed were found to have feminine physical characteristics, including eggs. Feminization of male fish was even found in rural parts of the watershed.
PPCPs have been linked to the wide spread feminization of male fish in streams of the United Kingdom.
Diclofenac has caused the **near extinction** of the white-backed, long-billed, and slender-billed vulture populations in Asia, which has led to an environmental crisis in some countries. Diclofenac is a common PPCP and was found in 18% of the Helena Valley wells sampled for PPCPs.

Potential Impacts for the State of Montana and Gallatin County:

- Gallatin County is one of the fastest growing counties in the State. Much of the growth is in the form of non-sewered subdivisions, which use septic systems for sewage treatment and disposal.
- This study will assess the current level of PPCP contamination of the ground-water and surface-water resources in Gallatin County.
- This study will also assess the effectiveness of several different sewage treatment approaches.
- The findings from this study will be applicable to many other areas of Montana.

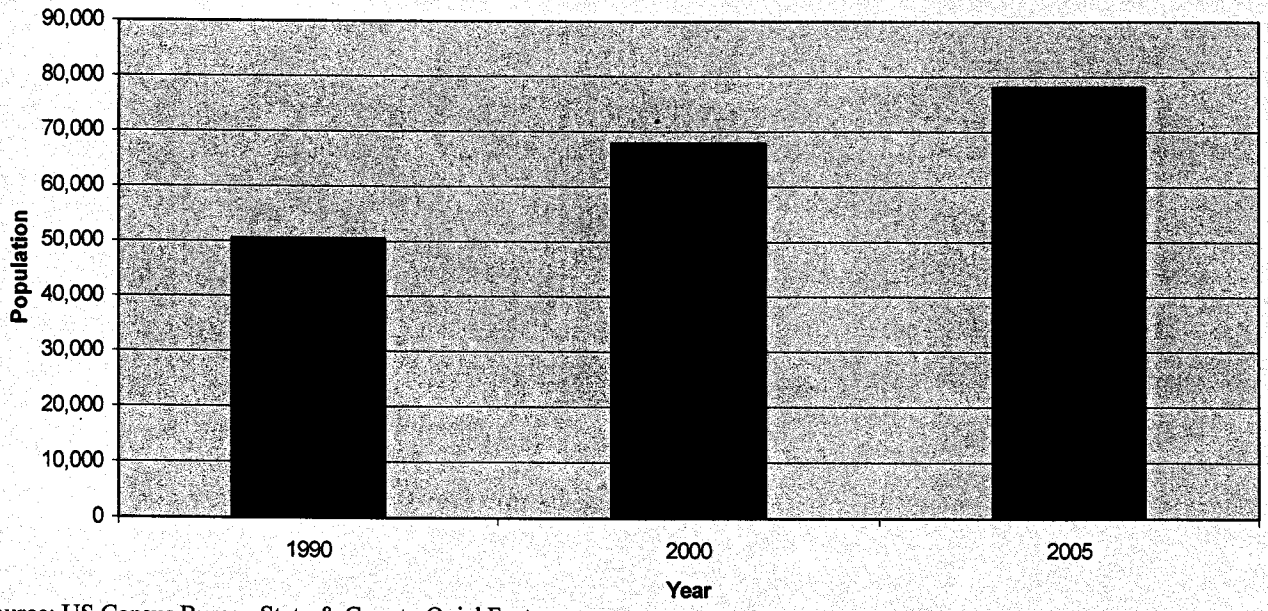
Population Growth Trend in Gallatin County, Montana

Wells Drilled in Gallatin County, MT
1987 - October 2006



Source: Ground Water Information Center, Montana Bureau of Mines and Geology

Population Growth Gallatin County, MT
1990 - 2005



Source: US Census Bureau State & County QuickFacts

Testimony to the 2007 Montana Legislature
Long Range Planning Subcommittee

January 24, 2007

By
Alan English, Manager
Gallatin Local Water Quality District
(406) 582-3148 alan.english@gallatin.mt.gov

A cooperative project between the Gallatin Local Water Quality District (GLWQD) and the Montana Bureau of Mines and Geology (MBMG).

I. PROJECT TITLE: *Assessment and distribution of pharmaceuticals and hormone products in wastewater and water resources of the Gallatin Valley, Gallatin County, Montana*

II. THE PROBLEM

1. Pharmaceuticals, personal care products, and endocrine-disrupting chemicals (PPCPs) are showing up in water resources around the country, and in Montana.

2. These chemical compounds have recently been found in drinking water wells here in Helena, in wastewaters in Missoula, and in four Montana streams sampled by the USGS, including one stream in the Gallatin Valley.

3. Evidence is mounting that these compounds are affecting aquatic life, but very little is known about their occurrence and the potential human health risks associated with them.

4. Based on previous work, it is clear that the primary source of these chemicals in ground waters and surface waters is through disposal of wastewater.

5. What we do know is that in Montana we need much more information to determine where these chemicals are found, what concentrations they are found at, and what the potential environmental and human health risks are.

III. PROJECT OVERVIEW

1. This project will first document the types and concentrations of these chemical compounds in different types of wastewater and then look at how efficient different types of wastewater treatment systems are at breaking down these chemicals.

2. This information will be used to determine which compounds might be found in ground waters and surface waters in the Gallatin Valley, and determine the loading to those waters.

3. Ground water and surface water sampling will then be conducted to determine if the chemical compounds are degraded or if they persist in ground waters and surface waters.

4. Based on all of the information collected, the risk to human health and the environment will be assessed, and recommendations will be made on how to best reduce or prevent the contamination of state waters with these compounds.

IV. FEASABILITY AND SUPPORT

1. The GLWQD and the MBMG have successfully worked together in the past, and between the two agencies, has the equipment and technical personnel resources to complete the work.

2. The GLWQD, MSU Extension Water Quality, and MBMG have already been researching work completed by others on this topic.

3. The USGS and others have established methods for collecting and analyzing water and wastewater samples for these compounds.

4. MBMG has also been developing the ability to analyze for some of these compounds and the GLWQD has tentatively secured analytical assistance from EPA and has been in contact with other analytical laboratories to arrange for sample analysis.

V. IMPORTANT CONSIDERATIONS

1. The project is designed to take a proactive approach to this emerging problem by assessing the scope of the problem and providing recommendations for minimizing risks as soon as possible, in hopes of preventing widespread contamination of State waters with pharmaceuticals and other associated chemical compounds.

2. The final report, and the information collected for the project will be readily available to the public through MBMG in the form of a published report, and through the Ground Water Information Center.

3. The findings of this report will be applicable to other areas of Montana, and will provide valuable information for assessing the risks to human health, aquatic resources, livestock, and wildlife by others.

4. The information will be useful to cities, towns, and smaller public water supply and public wastewater treatment system operators.